

REMARKS

In the June 14, 2007 Office Action, the Examiner noted that claims 1-27 were pending in the application; rejected claims 1, 12, 14, 16, 18, 20, 22, 24 and 26 as being substantial duplicates of claims 9, 13, 15, 17, 19, 23, 25, and 27 respectively; rejected claims 1-27 under 35 U.S.C. § 101; rejected claims 1-4 and 7-27 under 35 U.S.C. § 102(b); and rejected claims 5 and 6 under 35 U.S.C. § 103(a). In rejecting the claims, Hsu et al. (U.S. 6,134,340) and Morita et al. (U.S. 4,827,527) were cited. Claims 9, 13 and 15 have been canceled and thus, claims 1-8, 10-12, 14 and 16-27 remain in the case. The objections and rejections are traversed below.

Rejection under Double Patenting

In item 1 on page 2 of the Office Action, the Examiner rejected claims 1, 12, 14, 16, 18, 20, 22, 24 and 26 as allegedly being substantial duplicates of claims 9, 13, 15, 17, 19, 21, 23, 25, and 27 respectively.

Applicants have cancelled claims 9, 13 and 15; amended claims 17 and 19 to depend from claim 2; and amended claims 23, 25 and 27 to depend from claims 22, 24 and 26 respectively. Accordingly, applicants assert that the cited claims are not coextensive in scope, and are therefore, no longer subject to a double patenting rejection.

Regarding claims 20 and 21, claim 21 recites:

a ridge structure data extraction section for extracting, every time a partial image is sampled by said sampling section, **ridge structure data** including characteristic information unique to the organism portion from the partial image (emphasis added, lines 8-10). Accordingly, claim 21 recites features that are not recited in claim 20, and therefore, applicants respectfully assert the rejection under a double patenting rationale was improper.

In view of the above, applicants respectfully request the rejection be withdrawn.

Rejection under 35 U.S.C. § 101

In item 3 on page 3 of the Office Action, claims 1-27 were rejected under 35 U.S.C. § 101 for allegedly being directed to non-statutory subject matter. Specifically, the Office Action alleges that the claims describe an abstract idea that produces neither a physical transformation nor a useful, concrete and tangible result.

Dependent claims 1, 24 and 26 have been amended to recite, "**outputting a result of the synthesis** as organism characteristic data of the portion of the organism to **registration**

organism characteristic data storage means and/or to **authentication means** for authenticating the identification object person" (emphasis added, last three lines of each respective claim). Dependent claims 20-22 have been amended to recite "**outputting the result of the collation process as an authentication result**" (emphasis added, last line of each respective claim). Accordingly, each of the independent claims (1, 20, 21, 22, 24 and 26) produces a useful, concrete and tangible result, and therefore, are statutory under 35 U.S.C. 101. The remaining dependent claims (2-8, 10-12, 16-19, 23, 25 and 27) inherit the patentable recitations of their respective base claims, and therefore, are patentable under 35 U.S.C. 101. Accordingly, applicants respectfully request the 35 U.S.C. 101 rejection be withdrawn.

Rejections under 35 U.S.C. § 102(b)

Of the remaining claims, claims 1-4, 7, 8, 10-12, 14, 16-27 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hsu et al. This rejection is respectfully traversed.

Generally, Hsu describes an identification verification process using a digital image of an entire fingerprint. (see Figures 3, 5 and 6). After capturing an entire fingerprint, reference patch locations are then extracted from the created digital image (see col. 2, lines 14-39).

As discussed below in more detail, claim 1 recites limitations that provide the benefit that "an entire image .. [can] be acquired without producing the entire image from a plurality of partial images so that the memory capacity necessary for processing can be reduced significantly" (application, page 6, lines 25-28). Accordingly, the fundamental teachings of Hsu differ from the present application.

More specifically, Hsu fails to describe the "sampling section," "detection section," "extraction section" and "synthesis section" as recited in claim 1. Claim 1, as amended, recites "a **sampling section for sampling a partial image of a portion of an organism** from each of the identification object person and/or the registration object person" (emphasis added, lines 6-7). In item 5(i) on page 4, the Office Action asserts that Figure 2 - item 22, and col. 2, lines 13-16 of Hsu describe this feature. Hsu, however, describes capturing a digital image of an entire fingerprint image. More specifically, col. 2, line 17 of Hsu recites "generating a digital image of a fingerprint." (see also, figures 3, 5 and 6 -- entire image of fingerprint captured). Hsu does not describe "sampling a partial image" as recited in claim 1. In a non-limiting example of a possible embodiment of claim 1, one such sampling of a partial image could be a partial finger print image captured from a fingerprint "sweep" (see Present Application Specification pg. 6, line 25 --

pg. 7, line 3). In contrast, Hsu describes utilizing "reference patches" of an *entire* fingerprint image (see Hsu col. 2, lines 13-39). Accordingly, Hsu fails to describe this feature.

Claim 1 further recites, "a detection section for detecting, every time a partial image is sampled by said sampling section, a relative positional relationship between the partial image and one of other partial images sampled already" (lines 8-10). In item 5(ii) on page 4, the Office Action asserts that Figure 2 - item 54, and col. 2, lines 16-20 of Hsu describe this feature. Hsu, however, merely describes an enrollment processor that utilizes "multiple reference patches that together uniquely identify the image... [and] a reference image storage means, for storing reference patch images and locations provided by the enrollment processor" (col. 2, lines 19-22). Hsu fails to describe "detecting, **every time a partial image is sampled** by said sampling section, **a relative positional relationship** between the partial image and one of other partial images sampled already" (emphasis added) as recited by claim 1. Accordingly, Hsu fails to describe this feature.

Claim 1 further recites:

an extraction section for extracting, every time a partial image is sampled by said sampling section, characteristic portion data including characteristic information unique to the organism portion from the partial image; and a synthesizing section for synthesizing, every time a partial image is sampled by said sampling section, the characteristic portion data of the partial image extracted by said extraction section and characteristic portion data of the other partial image based on the relative positional relationship of the partial image detected

(claim 1, lines 11-17). In item 5(iii) and item 5(iv) on page 4, the Office Action asserts that (Figure 2 - items 46-50, and col. 2, lines 16-20) and (Figure 2 - items 54-58, and col. 2, lines 22-39) describe the "extraction section" and "synthesis section," respectively, as recited by claim 1.

Again, Hsu describes:

generating a set of **candidate match locations** in the subject image corresponding to the location of each such instance for each reference patch; and a **geometric constraint checking processor**, for attempting to locate in the set of candidate match locations a **subset of locations that is geometrically congruent with a corresponding subset of reference patch locations, to a desired degree of accuracy**

(emphasis added, col. 2, lines 26-33). Clearly, Hsu fails to describe "an extraction section for extracting, **every time a partial image is sampled** by said sampling section" and "a synthesizing section for **synthesizing, every time a partial image is sampled** by said sampling section... data of the other **partial image based on the relative positional relationship** of the partial image" as recited by claim 1 (emphasis added).

Accordingly, Hsu fails to describe the "sampling section," "detection section," "extraction section" and "synthesis section" as recited in claim 1, and therefore, claim 1 patentably distinguishes over the cited art.

Independent claim 20 recites:

a sampling section for sampling a partial image of a portion of an organism of the object person of authentication; a detection section for detecting, every time a partial image is sampled by said sampling section, a relative positional relationship between the partial image and one of other partial images sampled already; an extraction section for extracting, every time a partial image is sampled by said sampling section ... a synthesis section for synthesizing, every time a partial image is sampled by said sampling section... data of the other partial image based on the relative positional relationship of the partial image (claim 20, lines 3-14) and therefore, claim 20 patentably distinguishes over the cited art for at least the reason discussed above with respect to claim 1.

Independent claim 21 recites:

a sampling section for sampling a partial image of a pattern formed from a ridge on a portion of an organism of the object person of authentication; a detection section for detecting, every time a partial image is sampled by said sampling section, a relative positional relationship between the partial image and one of other partial images sampled already; ... extraction section for extracting, every time a partial image is sampled by said sampling section, ridge structure data including characteristic information unique to the organism portion from the partial image; a synthesis section for synthesizing, every time a partial image is sampled by said sampling section ... data extraction section and ridge structure data of the other partial image based on the relative positional relationship of the partial image (claim 21, lines 3-14) and therefore, claim 21 patentably distinguishes over the cited art for at least the reason discussed above with respect to claim 1.

Independent claim 22 recites:

sampling a partial image of a portion of an organism of each of the identification object person and/or the registration object person; detecting, every time a partial image is sampled at said sampling, a relative positional relationship between the partial image and one of other partial images sampled already; extracting, every time a partial image is sampled at said sampling, characteristic portion data including characteristic information unique to the organism portion from the partial image; and synthesizing, every time a partial image is sampled at said sampling... data of the other partial image based on the relative positional relationship of the partial image (claim 22, lines 5-16) and therefore, claim 22 patentably distinguishes over the cited art for at least the reason discussed above with respect to claim 1.

Independent claim 24 recites:

a detection section for detecting, every time a partial image is sampled by a sampling section for sampling a partial image of a portion of an organism ... an

extraction section for extracting, every time a partial image is sampled by said sampling section, characteristic portion data including characteristic information unique to the organism portion from the partial image; and a synthesis section for synthesizing, every time a partial image is sampled by said sampling section ... data of the other partial image based on the relative positional relationship of the partial

(claim 24, lines 5-12) and therefore, claim 24 patentably distinguishes over the cited art for at least the reason discussed above with respect to claim 1.

Independent claim 26 recites:

a detection section for detecting, every time a partial image is sampled by a sampling section for sampling a partial image of a portion of an organism from each of the identification object person and/or the registration object person, a relative positional relationship between the partial image and one of other partial images sampled already; an extraction section for extracting, every time a partial image is sampled by said sampling section, characteristic portion data including characteristic information unique to the organism portion from the partial image; and a synthesis section for synthesizing, every time a partial image is sampled by said sampling section ... data of the other partial image based on the relative positional relationship of the partial image

(claim 26, lines 7-17) and therefore, claim 26 patentably distinguishes over the cited art for at least the reason discussed above with respect to claim 1.

Dependent claims 2-4, 7, 8, 10-12, 16-19, 23, 25 and 27 inherit the patentable recitations of their respective base claims, and therefore, patentably distinguish over the cited art for at least the above-mentioned reasons in addition to the additional features recited therein. Therefore, applicants request the 35 U.S.C. § 102(b) rejection be withdrawn.

Rejections under 35 U.S.C. § 103(a)

Claims 5 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hsu et al. in view of Morita et al. This rejection is respectfully traversed.

Applicants submit that Morita fails to cure the deficiencies of Hsu described above. Accordingly, dependent claims 5 and 6 inherit the patentable recitations of their respective base claims, and therefore, patentably distinguish over the cited art for at least the above-mentioned reasons in addition to the additional features recited therein. Therefore, applicants respectfully request the 35 U.S.C. § 103(a) rejection be withdrawn.

Conclusion

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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